Quick Start Guide

Wireless Building-to-Building Bridge

3CRWE90096A
Wireless Network Solution

http://www.3com.com/
http://www.3com.com/productreg

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Quick Start Guide

This quick start guide describes basic installation and configuration of the 3Com Wireless Building-to-Building Bridge. For more detailed information, refer to the online user guide, available in Portable Document Format (PDF) on the *Installation CD*. The PDF format lets you view the user guide online or print a hardcopy.

NOTE: You must have Adobe Acrobat Reader installed on your system to read the *3Com Wireless Building-to-Building Bridge User Guide* PDF file. You can download the latest Adobe Acrobat Reader from the *Installation* CD or from http://www.adobe.com.

The user guide is installed on your hard drive when you install the 3Com Wireless Bridge Manager software from the *Installation* CD. You can access the user guide by using the Windows *Start* menu to locate the Bridge Manager program group.

Product Registration and Support

To register this product with 3Com, go to the following Web site:

http://www.3com.com/productreg/

To find support information, firmware updates, and links to the latest available drivers and utilities, go to the following Web site:

http://support.3com.com/

System Requirements

- Physically isolated Ethernet LANs
- Two or more 3Com Wireless Building-to-Building Bridge units
- One antenna with cable for each wireless bridge unit (can be purchased separately from 3Com as an accessory)
- Computer with Windows 95, 98, Me, Windows 2000, or Windows NT installed

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Installation Overview

Installing a set of 3Com Wireless Building-to-Building Bridges involves the following tasks:

- Unpacking the wireless bridge hardware and software
- Installing the wireless bridge configuration software
- Configuring all available wireless bridge units
- Mounting the wireless bridge units (if necessary)
- Mounting and configuring one antenna for each wireless bridge unit

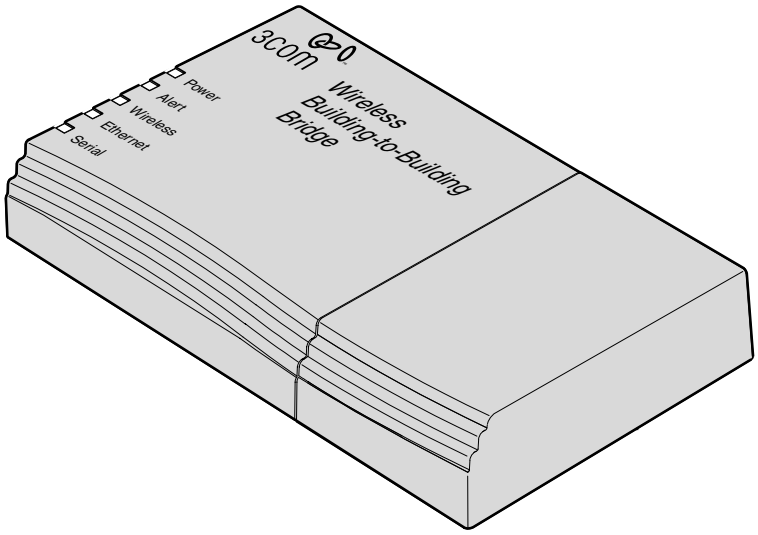
NOTE: Installing the 3Com Wireless Building-to-Building Bridge, cables, and antennas should be done only by professional network personnel.

The following sections outline the installation process for you, task by task. For detailed installation and configuration information, refer to the *3Com Wireless Building-to-Building Bridge User Guide* on the *Installation* CD.

Unpacking the Wireless Bridge Kit Contents

In your 3Com Wireless Building-to-Building Bridge package, you will find the following components:

- 3Com Wireless Building-to-Building Bridge (assembled)
- RJ-45 Ethernet crossover cable
- 5.2V Universal AC-to-DC power supply and cord
- Mounting hardware
- This printed quick start guide with warranty
- *Installation* CD containing a user guide and configuration software



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If any of these items is missing or damaged, please contact the place of purchase or 3Com Customer Support (http://support.3com.com).

Installing the Wireless Bridge Manager Software

You can install the 3Com Wireless Building-to-Building Bridge Manager on a PC or workstation running Windows 95, 98, Me, Windows 2000, or Windows NT. The Bridge Manager is a software configuration utility that allows you to perform all bridge configuration and management functions. You typically install the Bridge Manager on:

- One desktop computer, through which you can globally configure and administer all of the wireless bridge units.
- One laptop computer, through which you can adjust antenna polarization during installation by using the RSSI monitor at the antenna site.

1. Insert the *Installation* CD into your computer's CD-ROM drive.

   If the installation program does not begin automatically:

   a. Click *My Computer*.

   b. Click the icon for the drive in which the *Installation* CD is located.

   c. Double-click setup.exe.

      The Welcome screen appears.

2. Click *Next* to continue the installation.

   The Software License screen appears.

3. Click *Yes* to indicate that you agree with the displayed terms.

   The Choose Destination Location screen appears. This screen displays the default path and location for the Bridge Manager files and documents:

   `c:\program files\3com\3com wireless bridge manager`

   You can leave the directory set at the default path, or you can change the directory to suit your requirements.

4. Enter the directory in which the Bridge Manager program will be installed. When you have finished, click *Next* to continue.

   The Bridge Manager files and documents are installed in the directory you specified. It is possible that the installer will require that you restart your computer to complete the installation. When the installation is complete, a message is displayed that confirms a successful installation.

5. Click *Finish* to exit the installation.

   The Bridge Manager is now installed and you are ready to use it to configure your wireless bridge units.

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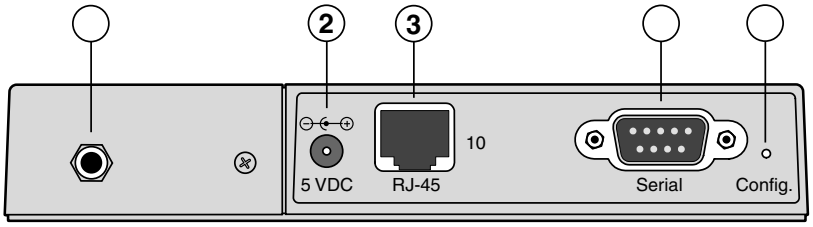
Configuring the Wireless Bridge Units

The 3Com Wireless Building-to-Building Bridge Manager software communicates with each wireless bridge using a non-routable protocol. Therefore, your wireless bridge units must be accessible on the local subnet to communicate with the Bridge Manager.

CAUTION: Do not try to batch-configure a set of wireless bridge units by powering up all of your units and connecting them to the same subnet at the same time. Connecting a set of bridge units to the same subnet while configuring them can produce a network loop. Avoid this situation by serially powering up, connecting, configuring, powering down, and detaching each bridge from the subnet unit one at a time.

1 Remove your 3Com Wireless Building-to-Building Bridge from the packaging.

The wireless bridge ships fully assembled. The back panel of the bridge provides a power jack (2) for connecting the bridge to a power source. It also provides a 10BASE-T Ethernet port (3) for connecting the bridge to the LAN (see figure below).



(S) MA port
(2) Power jack
(3) 10BASE-T Ethernet port
(S) erial port
(C) onfiguration button

2 Connect power to the wireless bridge:

a Connect the six-pin DC power cable to the power adapter.

b Connect the AC power cord to the other side of the power adapter.

c Connect the round power plug to the power jack (2) labeled 5 VDC.

d Insert the AC power cord into an AC power outlet.

The bridge unit turns on instantly when power is supplied to it. (The unit has no power switch.)

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3 Insert one end of the RJ-45 crossover cable into the bridge 10BASE-T Ethernet port ③. Insert the other end of the cable into the appropriate port on your Ethernet LAN device (a hub, for example).

Starting the Bridge Manager

To run the Wireless Bridge Manager, follow these steps:

1 On the Windows taskbar, click *Start*.

2 Select *Programs* and then select the Program Group you created when you installed the Wireless Bridge Manager.

3 Select the *3Com Wireless Bridge Manager* entry.

The 3Com Wireless Building-to-Building Bridge Manager screen appears and the Bridge Manager automatically scans the network for new devices.

Scanning for Bridge Groups

Whenever it is started, the Bridge Manager automatically scans the local network to detect currently accessible bridge groups. In this case, a *bridge group* is defined as all wireless bridge units having the same wireless local area network (WLAN) service area (also known as Extended Service Set Identification (ESSID)). The detected bridge groups are displayed on the 3Com Wireless Building-to-Building Bridge Manager screen.

Selecting a Bridge to Configure

With the 3Com Wireless Building-to-Building Bridge Manager screen displayed, follow these steps:

1 Right-click a displayed wireless bridge unit name to show the configuration options available for it.

2 Select *Configure*.

The Wireless Bridge Configuration screen appears (see the next figure), displaying tabs for *Network / Security*, *Options*, *Tools*, and *Info*. The functions of these tabs are described in detail in the user guide.

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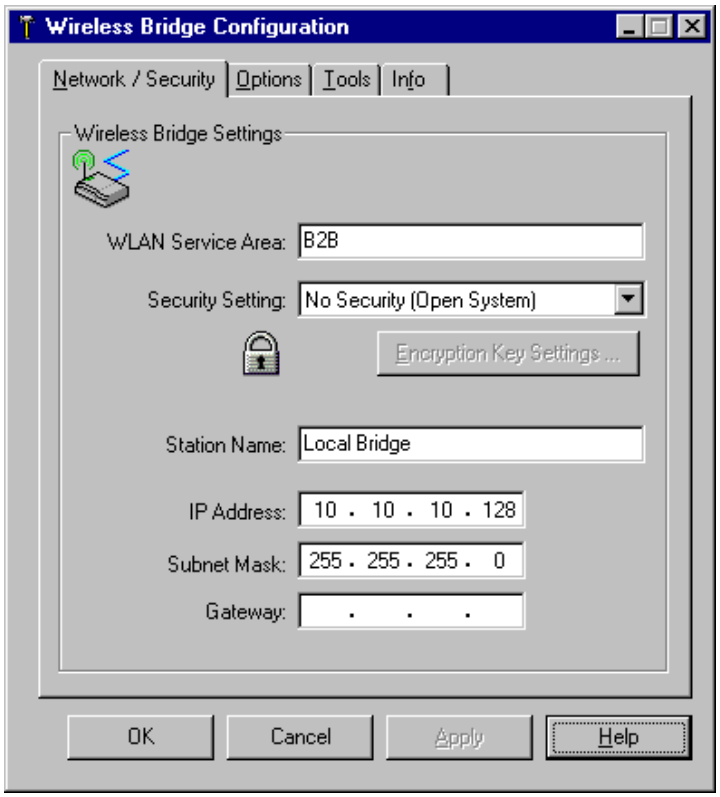
Setting Network and Security Values

You can change network and security settings for the wireless bridge in the *Network / Security* tab of the Wireless Bridge Configuration screen.



Network Values

Network settings determine the wireless network with which the bridge can associate. To change the *Network / Security* tab settings:

1 Enter the name of a WLAN Service Area.

The WLAN service area (ESSID) is used to specify a unique wireless network. The service area name can be up to 32 alphanumeric characters long. Only bridges with the same WLAN service area can associate with each other; they cannot communicate with bridges that have different WLAN service areas.

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2 Use the Security Setting pull-down menu to select one of the following security settings:

- No Security (Open System)
- 40-bit Shared Key for basic encryption
- 128-bit Shared Key for strong encryption

Using either a 40-bit or 120-bit shared key setting, all wireless bridge units in a single wireless LAN service area must share the same security key. The security settings for any associating bridge pair must match exactly. For more information about the security settings, see "Security Settings" on page 8.

3 Enter the Station Name.

The station name is an arbitrary identifier for each wireless bridge. This value lets you conveniently identify the bridge units with the Wireless Bridge Manager. Assigning a meaningful station name to each wireless bridge is recommended. Like the WLAN Service Area Name, this field uses any alphanumeric combination.

4 Enter the IP Address you want to assign to the wireless bridge.

The IP address is the network address that will be used by other computers to communicate with the wireless bridge. Assigning an IP address to the bridge is required only if you plan to use Telnet for remote configuration. (Refer to Appendix B in the user guide for more information about using Telnet.)

5 Enter the Subnet Mask value.

This value defines the range of IP addresses available within your local network. Assigning a subnet mask address to the bridge is required only if you plan to use the Telnet feature for remote configuration.

6 If your network uses a gateway (router or firewall), enter the Gateway IP address.

You must enter the IP address of your gateway if you plan to use Telnet to administer the wireless bridge from computers on a different subnet.

7 Click *Apply*.

When the wireless bridge has joined your wireless network by associating with another wireless bridge, the radio association LED will light green.

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Security Settings

3Com recommends using the strongest encryption setting supported by your wireless bridge. The Bridge Manager offers 128-bit (strong) or 40-bit (basic) shared-key encryption; however, 128-bit encryption may not be available to you, depending on U.S. export restrictions to your country.

Both strong and basic encryption make use of Wired Equivalent Protection (WEP) keys, which are expressed in hexadecimal notation. The WEP keys must be set identically for every wireless bridge you configure for your network. You can set the WEP keys in one of two ways. You can:

- **Have the keys automatically generated** — Allows you to easily enter any string of characters (as you would enter a password) that will automatically generate the WEP keys the same way for every wireless bridge you are configuring.
- **Enter the keys manually** — Allows you to use an existing set of encryption keys, but forces you to manually enter four long series of hexadecimal numbers in exactly the same way for every wireless bridge you are configuring.

Entering an Encryption String To enter an encryption string that will automatically generate the WEP keys, follow these steps:

1. In the *Network / Security* tab of the Wireless Bridge Configuration screen, select either *128-bit Shared Key* or *40-bit Shared Key* from the Security setting list.
2. Click *Encryption Key Settings*.

   The appropriate Encryption Key Settings screen appears.

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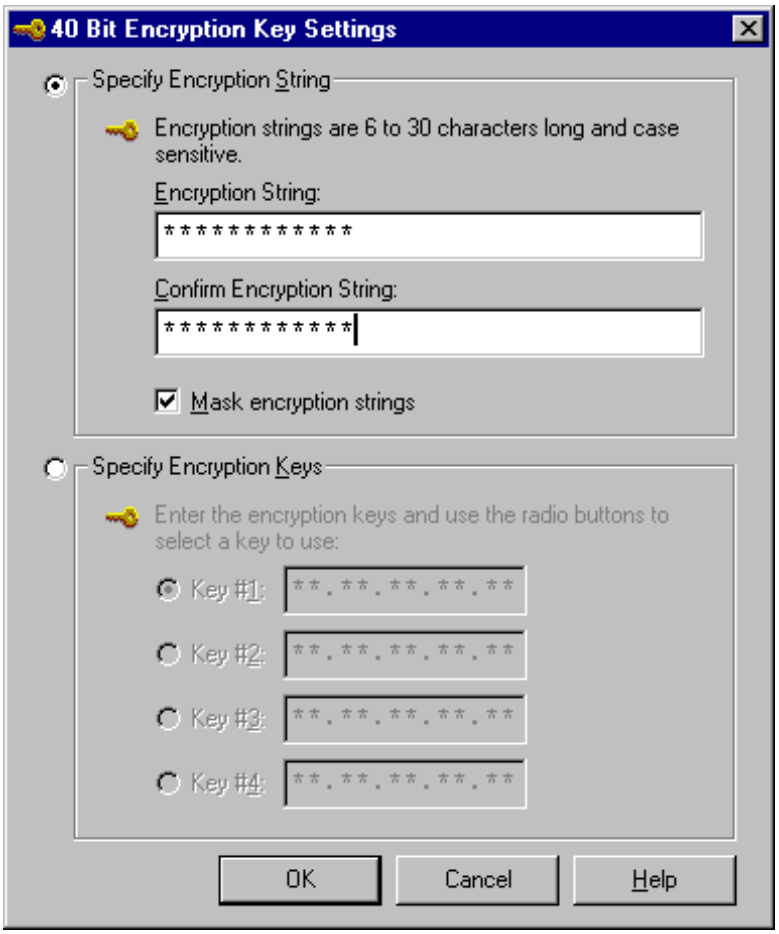

3 Select *Specify Encryption String*.

4 Type the encryption string in the *Encryption String* field. Retype the encryption string in the *Confirm Encryption String* field to make sure that you have entered the string correctly.

5 Click *OK* when finished.

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Entering the Encryption Keys You can decline to enter an encryption string and instead manually enter the WEP keys. To manually enter the WEP keys in hexadecimal notation, follow these steps:

1. In the *Network / Security* tab of the Wireless Bridge Configuration screen, select either *128-bit Shared Key* or *40-bit Shared Key* from the Security setting list.
2. Click *Encryption Key Settings*.

   The appropriate Encryption Key Settings screen appears.
3. Select *Specify Encryption Keys*.
4. Enter the key settings.

   You must enter settings for all four keys. All four keys must be entered in precisely the same hexadecimal notation for all the wireless bridges you are configuring for your network.
5. Click one of the radio buttons to select the transmit key to use.
6. Click *OK* when finished.

Setting Network Transmission Options

The *Options* tab of the Wireless Bridge Configuration screen lets you set values for the following options:

- **Transmit rate settings** — Control the rates at which the wireless bridge makes physical layer transmissions.
- **Medium reservation** — Controls the 802.11 Request to Send/Clear to Send (RTS/CTS) mechanism
- **Channel** — Controls the radio frequency

Refer to the user guide for descriptions of the network transmission options.

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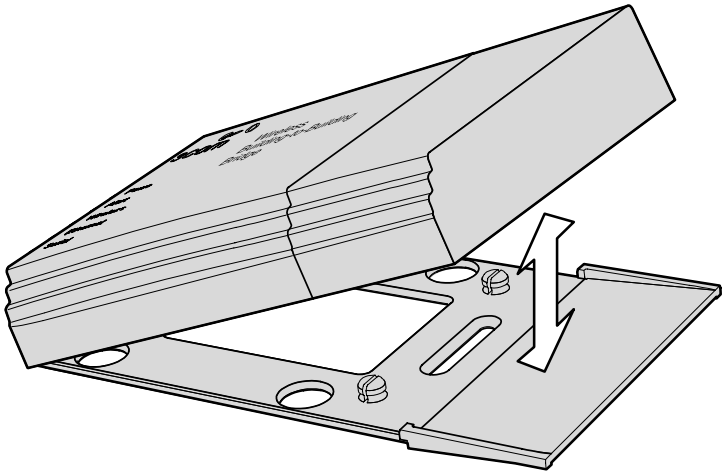
Mounting the Wireless Bridge

Mounting a wireless bridge unit is optional. If desired, you can simply leave the unit standing freely on a table surface. Whether to mount the unit on a wall or ceiling will usually depend on the length of the cable extending from the bridge unit to the antenna.

1. Detach all cables from the wireless bridge so that you can safely and easily mount the unit.
2. Remove the bottom mounting plate, as shown in the following figure.



3. Install the bottom mounting plate where desired with the supplied mounting hardware.
4. Place the wireless bridge on the mounting plate and snap it into place. Ensure that the bridge is secure.

   Do not reattach network and power cables until after you have installed and connected the antenna, as described in the next section.

Mounting the Antenna

Each 3Com Wireless Building-to-Building Bridge requires an appropriate antenna:

- An omnidirectional antenna for point-to-multipoint communications

  or
- A flat-panel antenna for point-to-point communications

Neither antenna is supplied with your wireless bridge: you must obtain the antenna as a separate 3Com accessory. Refer to the user guide for more information on antenna selection and positioning.

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To fine-tune the position of a particular antenna, it can be helpful to use a mobile PC loaded with the Wireless Bridge Manager so that you can use a diagnostic tool, the RSSI monitor, to adjust the angle and direction of the antenna at the antenna site.

Perform the following steps for each wireless bridge antenna:

1. Mount the antenna within cable distance (50 ft. max.) of the wireless bridge.

   Refer to the user guide for detailed information about properly positioning your antenna.

2. Connect the antenna cable to the SMA port on the wireless bridge.

   To locate the SMA port, see the bridge back panel illustration on page 4.

3. Connect the other end of the antenna cable to the antenna.

4. Reattach all Ethernet cables and power cords to the wireless bridge unit.

5. Verify that the Ethernet LED on the bridge is illuminated.

   The Ethernet LED lights green to show that a valid Ethernet link is present through the 10BASE-T port. It lights amber during Ethernet activity.

6. Start the Bridge Manager software to scan the network for the installed wireless bridge.

7. Using the Bridge Manager software, select the appropriate bridge and use the RSSI Monitor tool to position the antenna so that it receives the maximum possible signal strength.

   The RSSI Monitor statistics will update only when traffic crosses the radio link due to network activity.

Successfully positioning the antenna completes the wireless bridge installation.

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This warranty applies to customers located in the United States, Australia, Canada (except Quebec), Ireland, New Zealand, U.K., and other English language countries, and countries for which a translation into the local language is not provided

3Com Wireless Building-to-Building Bridge

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Warranty duration.

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(408) 326-5000

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Regulatory Compliance Information

FCC Radio-Frequency Exposure Notice

This device generates and radiates radio-frequency energy. In order to comply with FCC radio-frequency radiation exposure guidelines for an uncontrolled environment, this equipment has to be installed and operated while maintaining a minimum body to antenna distance of at least 2 meters.

This product does not contain any user serviceable components. Any unauthorized product changes or modifications will invalidate 3Com's warranty and regulatory approvals. This product must be installed by a professional technician/installer.

FCC Part 15 Notice (Applicable to Use Within the USA)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to use a professional technician to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402.
Stock No. 004-000-00345-4.

Manufacturer's Declaration of Conformity

3Com Corporation
5400 Bayfront Plaza
P.O. Box 58145
Santa Clara, CA 95054-8145
(408) 326-5000

Declares that the product:

Date: 31 May 2001

Brand Name: 3Com Corporation

Model Number: WL-311

Equipment Type: Wireless LAN

Complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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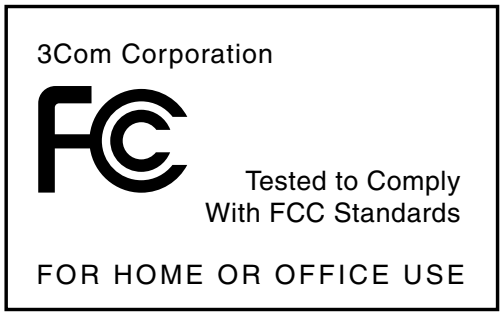

Industry Canada Notice (Applicable to Use Within Canada)

This Class B digital apparatus complies with Canadian ICES-003.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Avis de Conformité à la Réglementation d'Industrie CANADA

Cet appareil numérique de la classe B est conform à la norme NMB-003 du Canada.

Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, cet appareil doit être utilisé à l'intérieur seulement et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal.

European Community - CE Notice

Marking by the symbol: CE ! indicates compliance of this equipment to the R&TTE Directive 1999/5/EC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

- ETS 300 328 - Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques
- ETS 300 826 - Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for 2,4 GHz wideband transmission systems and HIgh PErformance Radio Local Area Network (HIPERLAN) equipment
- ES 59005 - Considerations for the evaluation of human exposure to electromagnetic fields (EMF's) from mobile telecommunication equipment (MTE) in the frequency range 30 MHz - 6 GHz
- EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. (CISPR 22 Class B).
- EN 60950 - Safety of information technology equipment, including electrical business equipment.

Safety Compliance Notice

This device has been tested and certified according to the following safety standards and is intended for use only in Information Technology Equipment which has been tested and certified to these or other equivalent standards:

- UL Standard 1950 / CSA C22.2 No. 950
- IEC 60950
- EN 60950

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